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PU020120 US

### **REMARKS**

The Non Final Office Action mailed November 15, 2007 has been reviewed and carefully considered. Reconsideration of the above-identified application, as herein amended and in view of the following remarks, is respectfully requested.

Claims 1-29 are pending in this application. Claims 1, 12, 19, 21, 23-24 and 28 have been amended. Note that claim 12 has been amended to correct an inadvertent typographical error, namely to specify a soft automatic switching mode in line 2. No new matter has been added and no new issues have been raised by the amendments.

### **CLAIM OBJECTIONS**

Claim 1 was objected to in that the terms "DFE" and "dd" should be defined when first mentioned. Similar problems in the other claims were objected to. Claims 1, 19, 21, 23-24 and 28 were amended to define these acronyms when first mentioned. Accordingly, withdrawal of the objection is respectfully requested.

### **§103 REJECTIONS**

Claims 1-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,671,339 to Ahn et al. (hereinafter "Ahn"). Applicant respectfully disagrees with the rejection.

Ahn is directed towards providing a more reliable lock detecting apparatus which may be applicable to a channel equalizer. As such, Ahn teaches a lock detector 106 which determines lock control signals LD0, LD1, LD2 based on baseband signals R\_I and R\_Q from the carrier recovery unit 104 and based on the decision symbol D\_I or

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D\_Q from the symbol determiner 105 to send the determined lock control signal to the channel equalizer 103. The carrier recovery unit 104 removes a frequency offset from the baseband signal output from the channel equalizer 103 based on the lock control signal to generate the baseband signals R\_I and R\_Q. *See* Col. 5, lines 49-54 and 58-64. The lock control signals LD0, LD1 and LD2 may be dependent on a blind mode or a decision-direct mode. *See* Col. 4, lines 20-22. The channel equalizer 103 comprises an algorithm selecting unit 103a which selects an algorithm for a coefficient update based on the lock control signals LD0, LD1, LD2. *See* Col. 6, lines 1-3.

However, Ahn fails to disclose or suggest at least an equalizer having a control input responsive to a control signal exhibiting a first value (1) for selecting a standard automatic switching/dd mode and a second value (0) for selecting a soft automatic switching/dd mode, nor a mode selector/apparatus for providing a selection signal having an output coupled to said control input for providing a control signal exhibiting one of the first and second values depending upon characteristics of the lock signal, essentially as claimed in claims 1, 21, 22, 23, and 24. Ahn fails to disclose or suggest at least an apparatus for automatic selection of one of a standard switching mode and a soft automatic switching mode in a decision feedback equalizer, wherein said selection is based on monitoring of the rate of transitions of the lock signal, essentially as claimed in claim 12. Ahn also fails to disclose or suggest at least providing a selection signal exhibiting a first value (1) for selecting said standard automatic switching mode when said rate of transitions is less than said prescribed rate and exhibiting a second value (0) for selecting said soft automatic switching mode when said rate of transitions is not less than said prescribed rate, essentially as claimed in claims 26, 27 and 28.

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Applicant has carefully reviewed Ahn but finds no teaching or discussion of a 'soft' automatic switching mode, much less any ability to select between that and a standard automatic switching mode, which is one of the features presently claimed. Namely, a 'soft' dd mode is described in the present specification e.g., on page 9, lines 1-4 as follows: "[S]oft automatic switching mode is similar to automatic switching mode, except that the dd mode is a soft dd mode. In soft dd mode, the input to the feedback filter is the output of the equalizer, instead of the slicer output." There is no mention anywhere in Ahn of any ability, capability or desirability of selecting between a soft automatic switching mode versus a standard automatic switching mode, much less selecting between these modes based on the rate of transitions of a lock signal. Instead, while Ahn arguably mentions a 'rate' of a signal output (noting the portion cited by the Examiner - Col. 8, lines 17 to Col. 9, line 42), this refers to wherein a reliability count calculator 106c counts control signals output from the threshold calculator 106b for a predetermined time to generate and output lock control signals LD0, LD1, LD2. Therefore, in fact, it appears that Ahn employs an assessment of a rate of control signal output to generate the lock signals themselves. Contrast this with the present invention, in which a monitoring of a rate of transitions of a lock signal determines the selection of a standard automatic switching mode and a soft automatic switching mode.

Further, note that Ahn merely states that the lock control signals LD0, LD1 and LD2 may be dependent on a blind mode or a decision-direct mode, as pointed out above. There is no mention whatsoever of a soft dd mode in Ahn.

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Accordingly, it is respectfully asserted that independent Claims 1, 12, 21, 22, 23, 24, 26, 27, and 28 are patentably distinct and non-obvious over Ahn for at least the reasons set forth above. Claims 2-11 depend from claim 1; claims 13-20 depend from claim 12; claim 25 depends from claim 24; and claim 29 depends from claim 28. The dependent claims include the limitations of their respective independent claims and are therefore believed to be patentable and nonobvious for at least the reasons stated for claims 1, 12, 21, 22, 23, 24, 26, 27, and 28.

It is therefore respectfully submitted that the present invention is not disclosed or suggested by the cited references taken alone or in combination. Claims 1-29 are believed to be in condition for allowance for at least the reasons stated above. Early and favorable reconsideration of the case is respectfully requested.

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CONCLUSION

In view of the foregoing, Applicant respectfully requests that the rejections of the claims set forth in the Non Final Office Action of November 15, 2007 be withdrawn, that pending Claims 1-29 be allowed, and that the case proceed to early issuance of Letters Patent in due course.

It is believed that no additional fees or charges are currently due. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to applicant's representatives Deposit Account No. 07-0832.

Respectfully submitted,

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